

ABSTRACT OF THE DISCLOSURE

An appliance for the gasification of carbon- and ash-containing fuel, residual and waste materials using an oxygen-containing oxidizing agent at temperatures above the melting point of the inorganic fractions, in a reaction chamber which is designed as an entrained-bed reactor, at pressures between atmospheric pressure and 80 bar, preferably between atmospheric pressure and 30 bar, the contour of the reaction chamber being delimited by a cooled reactor wall. The cooled reactor wall having the following structure, from the outside inward: a pressure shell, a cooling wall, a water-cooled gap between the pressure shell and the cooling wall, a ceramic protection for the cooling wall, and a layer of slag. The pressure and temperature of the cooling gap between the pressure shell and the cooling wall is controlled in such a way that it can be operated above and below the boiling point of the cooling water. The pressure in the cooling gap is higher than the pressure in the gasification chamber.